ABSTRACT

A method for micro-hermetic packaging of an optical device comprises: forming a micro-hermetic cavity on a substrate; providing a transmission optical waveguide transferring optical power between the interior and the exterior of the micro-hermetic cavity; fabricating or mounting at least one optical device within the micro-hermetic cavity; enabling optical power transfer between the optical device and the transmission optical waveguide; and sealing the optical device within the micro-hermetic cavity. The micro-hermetic cavity may be fabricated of a size comparable to the optical device, and many such cavities may be simultaneously fabricated on a single substrate using wafer-scale processing. The transmission optical waveguide, electrical feed-throughs, and/or other monitoring/controlling components may be provided with the micro-hermetic cavity on the same substrate, or as a separate component and/or on a separate substrate. Alternatively, the optical device, transmission optical waveguide, and any other associated components may be embedded in transparent material for hermetic sealing.